Metro Nashville

PUBLIC WORKS

2005 Waste Management Plan Report

August 31, 2006

This report also includes information submitted by the Metro Health Department and the District Energy System

Metro Public Works 2005 Annual Report to Council

Unless otherwise noted, throughout this report, all prior years reported data came from 2004 Annual Solid Waste Report to Council or previous annual solid waste reports to Council.

Section One -- Recycling

A. Percent of households in the urban services district participating in curbside recycling annually. (Average annual percent of houses with recycling that set their carts out for pickup each month.) Calculating the households participating would require Public Works to have some type of bar code on each cart and a scanning device on the truck to record each address participating. Public Works is, however, able to calculate a "Setout Rate" which calculates the percent of houses with carts set out on any given month. This percent comes from the total houses on each route compared to the number of houses that setout their carts on a route. [1] See Attachment A, Curbside Recycling Rates by Route CY2005.

CY 2001	CY 2002	CY 2003	FY 2004-05[2]	CY 2005
Curbside recycling discontinued	Curbside roll-out	--	40%	40%

B. Percent of commercial and residential waste recycled not including the diversion of waste from one class of landfill to another (total Davidson County municipal solid waste, public sector recycling and private sector recycling).[3]

The combined (public and private) recycling rate for CY2005 is 22%. This number was calculated using total Davidson County Municipal Waste Tons of 839,778.83 and combined recycling tons (excluding 304,953 tons of metals per Resolution RS2005-740) of 238,110.70[4]. The recycling rate with metals included is 39%. For detail on materials, see Attachment B, Municipal Solid Waste Statistics.

C. Tons dropped off at each recycling drop-off and convenience center.

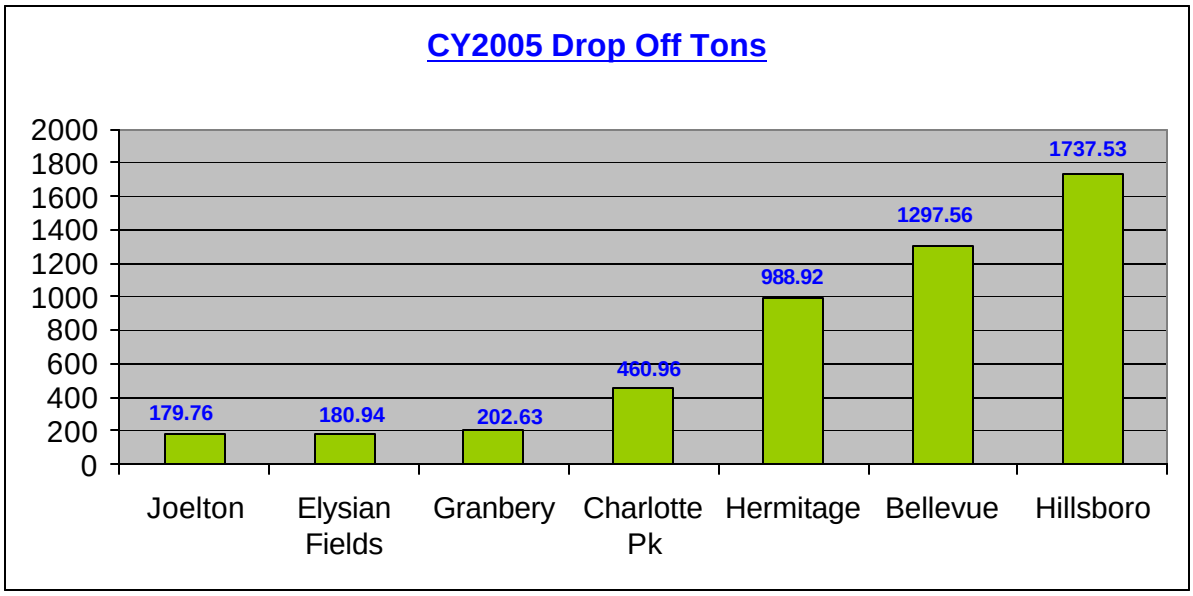
Metro's top performing drop-off in terms of tons is Hillsboro High School collecting over 1700 tons in CY2005. Hillsboro increased their tons by approximately 4.5% in CY2005. Joelton Middle School drop-off increased the amount of materials collected there by 17.5%. This past year, several initiatives related to drop-off improvements were made. These include, assignment of a position in Waste Management to inspect and clean drop-offs daily, street signs installed at several sites to improve visibility, meetings between sponsor groups and Waste Management staff to discuss site specific concerns and needs, enhanced signage at all sites to assist public in proper recycling and reduce contamination and illegal dumping (See Attachment C, Improved Drop-Off Recycling Signs). There are 5 drop-off sponsor groups who assist Metro with site maintenance and promotion of drop-offs. These groups receive a portion of the revenue generated from the sites which is used for community projects and school activities.

Public Works was asked to close the Crescent Plaza recycling drop-off due to construction at the site during calendar year 2005. This closure and the decrease in tonnage at the

[1] Formula for calculating setout rate is: Total houses with carts setout for 12 months / total houses on route for 12 months x 100.
[2] 2004 Annual Report to Council, addendum - provided to Councilwoman Hausser upon request, August 2005.
[3] Consistent with previous reports, public is defined as Metro and/or Metro Vendor collected materials. Private is defined as all other. For further explanation of these terms, see section four of report.
[4] Formula for calculating recycling rate: Total MSW + Total Recycling (private and public)/Total Recycling (private and public).

"Saturday only" sites (Elysian Fields and Granbery) have brought about an overall decline in drop-off tons. Metro staff began hauling from the "Saturday only" sites in late 2004 and since then, tonnage has been consistent week to week. In 2006, Public Works opened a new drop-off site at the Dupont-Hadley Middle School and through continuing educational efforts; is optimistic that tonnage in 2006 will show an increase.

	2001 Tons	2002 Tons	2003 Tons	2004 Tons	2005 Tons
Antioch Compton's	307	327	158.80	Closed	
Bellevue	1,560	1,502	1,386.60	1,326	1,297.56
Charlotte Pike	*Opened 2004*			116	460.96
Clarksville HWY Kroger	237	226	209.58	*99*	*Closed*
Crescent Plaza Kroger	237	236	132.52	157	*Closed*
Donelson Kroger	330	*Closed*			
Elysian Fields Kroger	325	331	236.51	229	180.94
Granbery Elementary	394	367	280.66	308	202.63
Hermitage	854	898	879.82	886	988.92
Hillsboro High School	2,327	2,283	1,713.31	1,657	1,737.53
Inglewood Kroger	591	*Moved to East Center*			
Joelton	95	103	73.86	153	179.76
Nashville Tech	1,515	1,406	1,212.10	596	*Moved to Charlotte Pike*
Rivergate Recycling	272	232	231.16	293	356.66
Drop-offs Subtotal	**9,045.00**	**7,911.00**	**6,514.92**	**5,820.00**	**5,404.96**
Anderson Lane[5]	71.22	46.01	77.36	50.05	58.26
East Center	*Opened Winter '01*	n/a	244.13	279.52	279.66
GRAND TOTAL	**9115.22**	**7957.01**	**6,836.41**	**6,149.57**	**5,742.88**



[5] Data for Anderson Lane East Convenience Center was not included in previous reports. However, PW staff has been able to research and document some of the previous years.

Section Two – Composting

A. **Tons composted annually commercially and residentially in the area of Metropolitan Government**.

Public Works recognizes that composting is a valuable method of decreasing material being landfilled and includes backyard composting as an important component of our education program. Backyard composting education encourages Nashville residents to compost their food waste in their backyards to be used on flower beds and gardens. In 2005, Metro staff conducted a Master Composting Class in partnership with the Nashville Zoo at Grassmere. Approximately 40 people attended and completed this six week class which has been conducted annually for the past 3 years. Because backyard composting is currently being conducted at an individual level as opposed to a government sponsored service, Metro can not at this time report tons diverted.

B. **Describe Metropolitan Government's composting efforts, costs, participation and diversion from landfilling**.

In 2006 Metro Public Works began distributing backyard compost bins to interested residents at cost. 47 compost bins have been distributed to date. It is a goal of the department to increase composting by encouraging individual participation.

Section Three – Education

A. Breakdown of expenditures for education related to the waste management plan.

2001	2002	2003	2004[6]	2005
$84,215.00	$262,700.00	$57,438.87	$193,312.00	$233,866.00

Most of the CY2005 budget for education was spent on a city-wide public information campaign related to the new automated waste management collection system in the Urban Services District. This new concept redefined the process of trash collection and required an educated public to ensure its success. This campaign included mailings, translation of materials, postcards, newsletters, truck decals and recycling stickers notifying residents that plastic was acceptable in the curbside collection program.

B. Explanation of the modes of education used.

Metro Beautification & Environment Commission, a Division of Metro Public Works and an affiliate of the national Keep America Beautiful System is committed to a behavioral approach to changing attitudes and practices related to reducing waste and increasing recycling. Metro Beautification's mission is to enhance the quality of life for all citizens by providing educational programs and opportunities for recycling and litter prevention. The goal of the education initiatives is to increase recycling rates in Davidson County. Metro Beautification's programs are focused on four key stake holders in our community: school and youth groups, neighborhood groups, civic organizations, churches, and businesses.

Schools and Youth Groups: Metro Beautification provides interactive educational presentations, teacher and student materials and hands on activities to public and private schools, community centers, scouts, and other youth groups. Programs include: Enviromutt, a litter prevention puppet show for K-2nd grade; Curby's Recycling Roadshow, presentations adapted to K-12th grade (with a special focus on 3rd grade students) on what, how and why to recycle; and Recycling Relay games for all school age children. 5574 school age children served in calendar year 2005

[6] The 2004 education expenditures does not include any staff costs.

Community Outreach (Adults): Composting & Recycling: Metro Beautification staff speak to garden clubs about backyard composting, a technique citizens can use to recycle their yard and food waste into rich soil amendment for use in their home gardens. Staff present programs to clubs and associations about what, how and why it is important to recycle. 23 adults participated in Community Outreach programs. 40 adults participated in composting education programs.

Events:
Metro Beautification staffs booths at community events. Information about recycling and litter prevention are provided to the public. Staff and volunteers are available to answer questions.

Future Education Initiatives: Metro Beautification will expand its education initiatives in 2006 to include a focus on motivating citizens to recycle with programs at the Metro Recycling Education Room, selling home compost bins, and working with businesses.

- The Metro Recycling Education Room at the Rivergate Recycling Facility: Metro Beautification and Environment Commission and the Division of Solid Waste in partnership with Rivergate Recycling (this is the company that Metro has contracted with to handle all recyclables), are designing and outfitting a classroom specifically to provide recycling education programs for students K—12, youth groups, community and civic organizations, and businesses. The emphasis will be on the consumer products created from recycled and re-claimed materials.
- Home Compost Bins: Metro Beautification will begin selling compost bins, made from recycled plastic, to citizens at cost. Information on home composting techniques for yard and food waste will be provided with the bins.
- Business Recycling: Metro Beautification staff will provide information on recycling and waste reduction techniques to businesses and make available the do-it-yourself waste audit information on our website -- http://www.nashville.gov/recycle/Publications/Do_it_Yourself_Waste_Assessment.pdf. Currently business can sign up on Public Work's website to receive a free waste assessment -- **http://www.nashville.gov/recycle/Recycling/business_recycling/business2.asp**

C. **Number of individuals reached through education.**
   a. Enviromutt—429 children
   b. Curby's Recycling Roadshow—4,835 children
   c. Recycling Information Program—310 children
   d. Community Outreach—23 Adults
   e. Composting Education—40 Adults
   f. Events:
      i. Lawn & Garden Show—24,000 Adults
      ii. Mayors 1st Day—10,000 Adults & Children
      iii. Thermometer Swap—280 Adults
      iv. Dell Computer Recycling--1,136 Adults
      v. African Street Fair—unknown
      vi. Eakin School Carnival--unknown

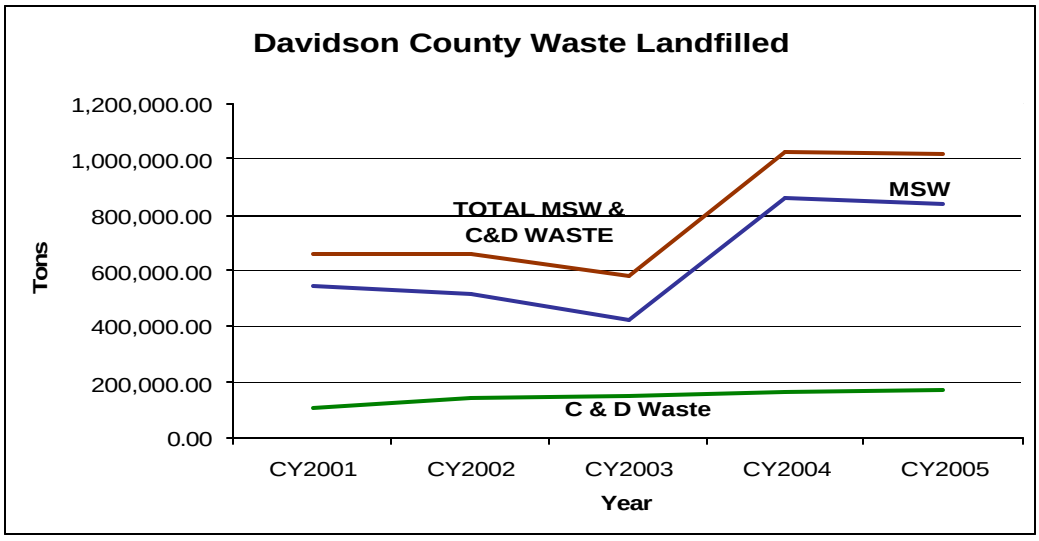
Section Four – Waste Hauling & Disposal

A. **Tons of commercial waste landfilled in Davidson County and out of Davidson County annually;**

B. Tons of residential waste Davidson County landfilled in Davidson County and out of Davidson County from the Urban Services District and from the General Services District annually.

As commercial waste and residential waste outside the USD are collected by many different haulers (non-metro or metro contractors) who may combine residential and commercial accounts on a route there is no method to separately calculate the tonnage of commercial waste which is landfilled from Davidson County nor to breakdown USD and GSD residential waste. When haulers take their material to a waste transfer station, they are not required to specify if the waste is from residential or commercial accounts and thus there is no database that records commercial/residential categories of the material. Public Works can, however, provide the total tons of municipal solid waste which were landfilled (i.e., commercial and residential - from businesses, industries, and residents in Davidson County) and then compare that to the total tons of waste that Metro Public Works and its contractors collected. While Metro does pick up waste from some small businesses in the USD, the waste Metro and Metro contractors hauls is primarily USD residential waste.

As represented in the below graph, in 2005, 839,778.83 tons of municipal solid waste (MSW) was landfilled in Class I landfills from residents and businesses in Davidson County. Of that 839,778.83 tons Metro Public Works and its contractors collected 151,163.75 tons (see chart below). In addition to the MSW, 177,648.30 tons of construction and demolition waste went to Class IV land fills. Please note that MSW tons from 2004 were revised in the Fall of 2005 to include sewage sludge and industrial and special waste tons per a TDEC notification in September 2005 which stated a requirement for Metro to collect and report as MSW all industrial waste and sewage sludge . (For details on 2004 and prior tons, see Attachment D, Davidson County Waste Landfilled Inside and Outside of Davidson County.)



Tons of Waste Collected by Metro Public Works and contractors.

	2001	2002	2003	2004	2005
Inside Davidson County	161,000.00	161,000.00	0.00	0.00	0.00
Outside Davidson County	11,489.00	21,911.00	179,321.00	135,556.00	151,163.75
Total Metro Waste	**172,489.00**	**182,911.00**	**179,321.00**	**135,556.00**	**151,163.75**

Section Five – Household Hazardous Waste

A. Amount of household hazardous waste diverted from landfills.

i. **Electronics /computers**
ii. **Batteries, paint, oil and other chemicals**
iii. **Antifreeze**
iv. **Waste tires**
v. **Other**

Material Type	2005 Tons
Electronics/Computers	13.46
Batteries (car & consumer)	28.06
Antifreeze	3.10
Used Motor Oil	17.26
Propane Tanks	3.09
Oil Based Paint & Pesticides	66.20
Waste Tires	7,375.59
TOTAL TONS	**7,506.76**

For historical data see Attachment E. Household Hazardous Waste Diverted from Landfills.

Section Six -- Landfill Diversion

A. Describe Metropolitan Government's efforts to divert more household hazardous waste from landfills.

The EPA estimates that Americans generate 1.6 million tons of HHW per year and the average home can accumulate as much as 100 pounds of HHW annually. Across the state of Tennessee, most counties have once a year or twice a year HHW collection for their residents. Metro Public Works is the only county in the State of Tennessee that operates a household hazardous waste which is open to the public 7 days a week. This facility accepts paint, pesticides, household cleaners, used motor oil, computers from Davidson County residents 7:30 AM ~ 5 PM Monday through Saturday and noon to 4 PM on Sunday. Information about Metro's household hazardous waste collection site is provided on the web at www.nashville.gov/recycle, channel 3 aired a slide show which described where to take household hazardous waste in 2005 and public works staff passed out literature on recycling and household hazardous waste at neighborhood meetings.

B. Describe Metropolitan Government's efforts to divert more residential waste from landfills.

During 2005 Metro Public Works utilized Channel 3 to show educational slides which highlighted curbside recycling. These slides air daily and encourage residents to participate in recycling. These slides also targeted specific educational issues such as magazine recycling. For example, Public Works was notified by Rivergate Recycling that curbside material contained very few magazines. Staff then created slides for Channel 3 which focused specifically on magazines and items citizens might not be aware could be recycled. In addition, brochures listing all recycling drop-off and convenience center locations have been distributed at neighborhood groups, public meetings and events.

C. Describe other efforts by Metropolitan Government to divert more commercial waste from landfills.

Public Works distributed drop-off location information at the Small Business Fair encouraging small business to bring their recyclable material to the drop-offs. Public Works continues to collect recyclables from medium to small businesses located on curbside recycling routes. The Nashville.Gov website also includes specific information for business recycling including a list of local recyclers of various types of material. One additional success has been in the Joelton area where drop-off sponsors Joe and Joy West take fliers to local businesses informing them of what can be brought to the Joelton Middle School Recycling Drop-off.

Section Seven—District Energy System *(See attached District Energy System report for 2005).*

A. Performance guarantees contained within Metro's contract with the contractor for the design, construction, improvement, operation and management of the district energy system.
B. The number of customers served by the central district energy system.
C. Amount of time that service to the customers has been interrupted and the reason for each interruptions.
D. The number of Nashville Thermal employees hired and still employed by Metro or with the central district energy distribution system.
E. The number and description of OSHA reportable accidents and lot time accidents that have occurred within the central district energy distribution system.

Section Eight—Environmental Compliance *(See attached Health Department report for 2005)*

A. Nashville's air quality according to the National Ambient Air Quality Standards, including a breakdown of major contaminants and causes of pollution.
B. Number and type of environmental violations for:
   i. Trash collection by contractor or by the Metro Nashville Government
   ii. Recycling contractor
   iii. Ash disposal contractor
   iv. Waste disposal/landfilling, including noncompliance with groundwater regulations
   v. Thermal plant and/or the central district energy distribution system, including noncompliance with water discharge regulations or air quality regulations.
C. Estimated additional vehicles miles traveled with increase in Metro solid waste out of county hauling of residential trash.

   500,000 miles are traveled disposing of Metro municipal solid waste between the transfer station and landfill.[7]

Section Nine—Finances

A. Provide the annual costs for:

i. Residential trash collection, including cost of new trucks and containers;

FY2002	FY2003	CY2003	CY2004	CY2005
$7,531,693	$7,914,773	$8,081,018	$8,358,889	$12,551,650

In 2005, approximately 104,590 tons of trash was collected at the curb. As noted in the above chart, the actual expenses of $12,551,650 include:

- Contracted Collection: $6,910,330
- Metro (city) Collection: $1,176,809
- Carts (Initial Trash Roll-Out): $4,464,511

[7] Data from Allied Waste Transfer Station.

CY2005 included the roll-out of Nashville's new automated trash collection program. Routes with fully automated trash collection system use a single, one-person vehicle with a mechanized "arm" that lifts the can, empties the waste, and returns the can to its original curbside position. This system has improved our community with uniform carts helping neighborhoods look neater, greater efficiency as drivers do not have to leave the vehicle, and it is easier on residents as carts can be rolled to the curb instead of dragged or lifted. The operational cost for CY2005 without the start-up purchase of carts is $8,087,139.00. The new automated collection program began in the Spring of CY2005. Emergency contracts were continued through the early months of CY2005 to ensure the community received no break in collection service during the transition to automated collection.

ii. **Commercial trash collection**; For 2005, 2,850 tons of trash were picked up from the downtown area and 28,452 tons of trash were picked up through front loader/dumpster collection for a total of 31,302 tons at $14.77 per ton. 2004 reported tons were 31,673 at 22.52 per ton. As evidenced by the chart below, the 2004 reported budget of $713,290 was approximately 54% higher than the 2005 budget of $462,468. This difference, along with increased efficiencies in downtown trash collection due to uniform trash carts and centralized cart locations would account for the reduced per ton cost during 2005. Additionally, approximately $200,000 of the 2004 budget included new trucks and equipment.

FY2001	**FY2002**	**CY2003**	**CY2004**	**CY2005**[8]
$792,874	$638,368	$671,321	$713,290	$462,468

iii. **Curbside recycling collection, including cost of new trucks and containers**; Total curbside ONLY tons 13,213 for 2005.

CY2001	**CY2002**[9]	**CY2003**	**CY2004**	**CY2005**
n/a	$650,749	$1,303,362	$1,346,375	$808,503

iv. **Operation, disposal and collection of recycling drop offs and convenience centers**; in 2005, 96,736 citizens used the East and Anderson Lane Convenience centers.

	FY2001	**FY2002**	**CY2003**	**CY2004**	**CY2005**
Convenience Centers[10]	$992,532	$736,925	$1,025,456	$1,463,768	$1,107,373
Drop-offs[11]	$930,117	$882,872	$744,876	$516,236	$217,796

v. Transfer and disposal costs;

In 2005, $4,122,943 was the total paid by Metro to Metro's contracted landfill operator/transfer station for refuse disposal. This figure includes all Metro and contracted

[8] 2005 data for commercial trash collection includes all cost of operating the Downtown Trash Collection program. Prior to 2005, this section included Front Loader Collection costs which are primarily apartments.
[9] Curbside recycling implementation began in April 2002 and was complete in December 2002.
[10] Data for FY2002 through CY 2003 comes from NET cost in 2004 Annual Report to Council. CY2004 reflects the full operating budget reported in the 2004 Annul Report to Council. CY2005 data reflects the full operating budget for two convenience centers, any revenue received from citizens using the centers is reported in Section 9, B.ii Tipping Fees.
[11] Data for 2001 through 2004 gathered from 2004 Annual Report to Council. In 2004 and 2005 a significant decrease in cost came because Metro had contracted out collection from drop-offs in previous years but began collecting and transporting some of the drop-off materials in the Spring of 2004. By January 2005, Metro was collecting and transporting all materials from drop-offs.

residential refuse collection, dead animal collection, convenience center and drop off site refuse, and HHW – latex paint disposal.

Residential Trash Collection and Disposal Costs

	FY2001	FY2002	CY2003	CY2004	CY2005[12]
Operational Cost[13]	$7,531,693	7,914,773	8,081,018	8,358,889	$8,087,139
Weekly Operational Cost/Customer	$1.11	$1.17	$1.2	$1.24	$1.23
Disposal Cost	$14,668,724	$12,483,998	$4,098,914	$3,979,340	$4,122,943
Weekly Disposal Cost/Customer	$2.17	$1.85	$0.61	$0.59	$0.63
Annual Cost to Customer	$170.77	$156.91	$93.62	$99.51	$96.38

vi. Transfer and disposal costs of thermal ash;

n/a

vii. Full cost of thermal operations;

n/a

viii. **Full cost of operating the central district energy distribution system;** (See DES Report)

ix. Metropolitan government's, the state of Tennessee, and the aggregate of private customers heating and cooling costs annually; (See DES Report)

x. The amount paid by metro as the additional system capacity charge according to Annex C, Section B.1. of the service agreement between metro and the customers; (See DES Report)

xi. Annual cost of maintaining the energy distribution system above the one hundred fifty thousand dollar allowance provided by contractor and an explanation of the amount expended. (See DES Report)

B. Annual revenue received from:

i. The sale of paper, aluminum, and other recyclables; includes income from curbside recycling, drop-offs, convenience centers, mulch sales.

FY2001	FY2002	CY2003	CY2004	CY2005
$49,264	$261,062	$291,057	$241,524	$236,395

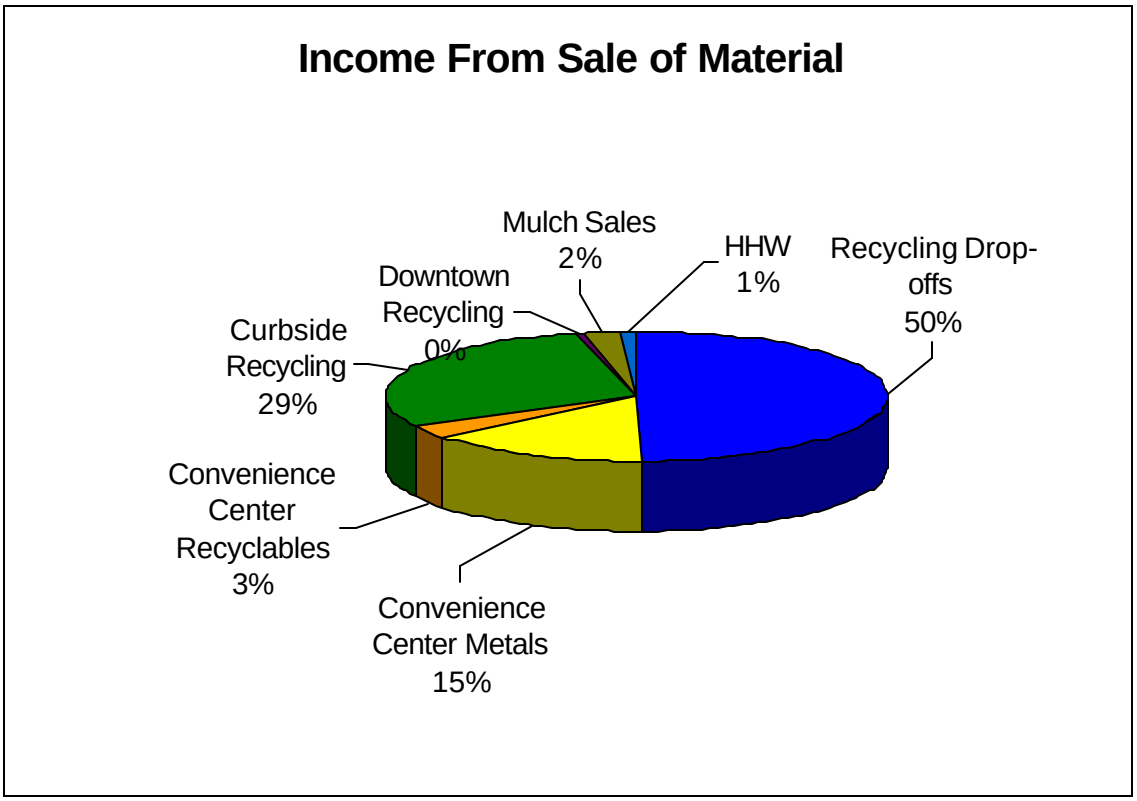
The $236,395 revenue from sale of materials during CY2005 is as follows:

- Drop-offs: $117,220
- Convenience Centers $34,658 (Metal)
  $6,935 (Recyclables)
- Curbside (May ~ Dec 05): $68,506
- Downtown Recycling: $1,088
- Mulch sales: $5,634
- Household Hazardous Waste: $2,354 (used motor oil & batteries)

Over 70% of the revenue data noted in the above chart for both CY03 and CY04 was from sale of electricity at the Bordeaux Landfill through the collection of methane gas. CY03 included $217,533 and CY04 included $172,261 from electricity sales. This program was discontinued by the contractor in CY05. In April of CY2005, Metro's new contract with Rivergate Recycling went into effect and Metro began receiving revenue from drop off and curbside recycling. It is expected that revenue will increase greatly in CY2006 as Metro will have had it's first full year of revenue from the sale of recyclables.

[12] Cost per customer data is based on 126,683 total customers. This includes all residential trash customers collected by Metro and Metro Contractors.

[13] CY2005 costs reflect actual costs for Metro's residential waste collection program. As noted in section 9Ai, $4,464,511 in carts were purchased for one-time trash roll out - with carts then, the $12,551,650 is the total cost for trash collection in 2005.



ii. **Tipping fees:**

This section reports revenue (other then revenue from sale of recyclable material reported above) Metro received via tipping fees and waste generation fees from several sources as listed below.

The 2005 revenue breaks down as follows:

Front Loader-MDHA (Flat Fee MDHA Housing Complexes)	$ 101,250
Convenience Ctr Tip Fee ($5- $10:small load/$11/cubic yard: large load):	$ 359,823
Compost Facility Tip Fee ($.01/lb: Yard Waste/$15/ton: Ground wood):	$ 121,200
MSW Surcharge/Waste Generation Fee ($6/ton):	$2,801,795
C&D Surcharge/Waste Generation Fee (.50/cubic yard):	$ 342,323
Total Revenue:	**$3,726,391**

For a breakdown of historical data see Attachment F. Revenue.

iii. Customers of the central district energy distribution system; (See DES report)

iv. Waste generation *fee*; See Section 9bii (Tipping fees)

v. Other: n/a

Section Ten--Contract compliance

A. Number and type of contract violations for:

i. Trash pickup by contractor or by the metropolitan government;
None

ii. Recycling contractor;
None

iii. Ash disposal contractor waste disposal/landfilling;
n/a

iv. Thermal plant and/or the central district energy distribution system.
See DES Report

Section Eleven--Minority/women participation

A. Number and percent of employees who are minorities/women for each contractor of metro involved in the plan; and

See Attachment G. Contract Compliance, Business Type and Minorities in Workforce

B. Number of minority/women-owned business enterprises that have contractual relationships with the waste management plan. (Ord. 2002-931 § 1, 2002)

See Attachment G. Contract Compliance, Business Type and Minorities in Workforce

Metro Public Works 2005 Annual Report to Council
Attachment A.

Curbside Recycling Setout Rate by Route for CY2005

Route	Setout Rate	Route	Setout Rate	Route	Setout Rate	Route	Setout Rate	Route	Setout Rate	Route	Setout Rate
1201	53.10%	1407	44.72%	2304	67.39%	3201	34.86%	3407	33.51%	4304	38.85%
1202	37.86%	1408	44.50%	2305	52.63%	3202	24.97%	3408	18.86%	4305	41.00%
1203	50.75%	1409	34.99%	2306	47.12%	3203	40.16%	3409	32.32%	4306	49.87%
1204	49.89%	1501	61.02%	2307	66.26%	3204	35.06%	3501	61.71%	4307	26.48%
1205	43.42%	1502	53.09%	2308	46.32%	3205	38.55%	3502	34.55%	4308	53.12%
1206	19.69%	1503	51.89%	2309	47.43%	3206	14.87%	3503	40.90%	4309	42.88%
1207	21.47%	1504	46.73%	2401	67.98%	3207	20.30%	3504	31.19%	4401	65.43%
1208	28.34%	1505	60.92%	2402	57.93%	3208	26.09%	3505	40.61%	4402	46.39%
1209	15.86%	1506	18.68%	2403	57.87%	3209	36.07%	3506	26.89%	4403	38.54%
1301	60.75%	1507	33.61%	2404	49.76%	3301	73.96%	3507	13.52%	4404	33.16%
1302	49.93%	1508	44.95%	2405	49.73%	3302	51.73%	3508	24.97%	4405	38.85%
1303	74.42%	1509	39.81%	2406	27.23%	3303	53.24%	3509	22.11%	4406	23.30%
1304	61.71%	2201	36.85%	2407	28.39%	3304	52.05%	4201	40.97%	4407	36.73%
1305	65.76%	2202	28.28%	2408	30.48%	3305	47.44%	4202	21.49%	4408	36.17%
1306	34.06%	2203	49.37%	2409	34.74%	3306	31.01%	4203	43.06%	4409	11.96%
1307	42.18%	2204	40.60%	2501	44.96%	3307	28.45%	4204	24.65%	4501	36.48%
1308	53.17%	2205	44.61%	2502	36.70%	3308	32.73%	4205	54.34%	4502	32.00%
1309	56.69%	2206	26.11%	2503	44.84%	3309	35.76%	4206	34.02%	4503	39.51%
1401	47.83%	2207	19.75%	2504	42.59%	3401	58.84%	4207	19.05%	4504	31.61%
1402	41.88%	2208	31.96%	2505	41.19%	3402	37.19%	4208	25.17%	4505	40.40%
1403	43.18%	2209	33.75%	2506	37.58%	3403	48.36%	4209	19.89%	4506	32.16%
1404	40.06%	2301	52.30%	2507	43.45%	3404	32.82%	4301	50.62%	4507	24.49%
1405	46.71%	2302	44.37%	2508	16.72%	3405	64.65%	4302	45.00%	4508	19.30%
1406	51.26%	2303	54.40%	2509	19.18%	3406	47.39%	4303	46.33%	4509	31.71%

Metro Public Works 2005 Annual Report to Council
Attachment B.

Municipal Solid Waste Statistics

Davidson Co. MSW	2001	2002	2003	2004	2005
Total	**547,438.94**	**514,542.85**	**425,234.00**	**862,895.17**[14]	**839,778.83**

Private Sector Recycling	2001-02	2002-03	2003	2004	2005
Paper & Cardboard	No data collected	89,604.00	81,539.64	96,416.20	65,469.90
Pallets			14,262.00	30,318.84	14,730.00
Grease		3,752.00	126.50	932.00	52.00
Metals		112,000.00	298,687.00	126,886.60	304,953.10
Electronics		100.00	123.42	155.00	100.00
Plastics		11.70		13.39	682.80
Asphalt		20,000.00			
Glass			3,292.00	3,290	21,711.00
Textiles			5,062.44	5,406.06	5,791.70
Batteries					483.00
Total		**225,467.70**	**403,093.00**	**263,418.09**	**413,973.40**

Public Sector Recycling	2001-02	2002-03	2003	2004	2005
Antifreeze/Oil		18.10	18.16	22.03	20.40
Batteries			39.67	36.13	28.10
Electronics		0.25		4.85	13.50
Glass		1,940.44	1,798.30	1,322.89	1,086.40
Mixed Metals	7,714.66	2,136.99	2,275.36	6,506.95	651.00
Yard Waste	19,078.00	38,888.44	74,201.72[15]	88,580.41	83,473.20
Asphalt		15,017.00			
Mixed Recyclables (Curby[16])		5,989.98	13,608.78	12,726.95	13,969.90
Paper & Cardboard		5,467.94	4,477.06	4,459.77	3,887.10
Plastic		282.57	266.23	316.12	382.20
Tires	7,714.70	149.46	3,404.15	7,501.83	7,375.60
Ash	59,218.00[17]				
Drop-offs & Centers	9,116.01[18]				
Tanks				5.49	3.10
Green Demolition				67,011.00	18,200.00
Total	**102,841.37**	**69,891.17**	**100,089.43**	**188,494.37**	**129,090.40**

2005 Combined Recycling - Metal	
Total Private & Public Sector	**543,063.80**
Less Private Sector Metal	304,953.10
Remaining	238,110.70

[14] MSW tons from 2004 include 117,721 tons of sewage sludge and 91,703.85 tons of industrial and special waste which had previously not been included as municipal solid waste. In the fall of 2005, TDEC requested that Metro Public Works collect and report these numbers going forward.

[15] Beginning in 2003 and there after, Yard Waste tons include material recycled at Bordeaux Mulch facility and tons recycled by Nashville Electric Service Tree Trimming program.

[16] Mixed Recyclables for 2005 are Curbside Recycling (13,212.83 tons), Front Loader Recycling/Recycling Dumpsters (415.77 tons), Metro Building Recycling (304.68 tons) and Anderson Lane (36.63 tons)

[17] Ash recycling was discontinued after the Thermal Transfer Station shut down.

[18] This material was not tracked by commodity but would include paper & cardboard, plastic bottles, metal cans, glass bottles collected at Metro Public Works drop-offs and convenience centers.

Improved Drop-off Recycling Signs

ILLEGAL DUMPING

RECYCLE, DON'T DUMP!

INSIDE THE CONTAINERS IS RECYCLING
OUTSIDE THE CONTAINERS IS ILLEGAL DUMPING!

VIOLATORS ARE SUBJECT TO PROSECUTION

FOR YOUR SAFETY

DO NOT OPEN REAR DOOR OR CLIMB IN RECYCLING BINS.

CALL 880-1000 FOR ASSISTANCE

DO NOT REMOVE ANY RECYCLABLES OR ITEMS FROM RECYCLING BINS.

CALL 880-1000 FOR ASSISTANCE

VIOLATORS ARE SUBJECT TO PROSECUTION

These signs were placed on all recycling roll-off containers used at Metro Public Works drop-offs.

Metro Public Works 2005 Annual Report to Council
Attachment D.

Davidson County Waste Landfilled Inside and Outside County.

	2001	2002	2003	2004	2005
MSW Inside Davidson County	225,528.00	90,007.00	0.00	0.00	0.00
MSW Outside Davidson County	321,910.94	424,535.85	424,177.00	862,895.17	839,778.83
TOTAL MSW	**547,438.94**	**514,542.85**	**425,234.00**	**862,895.17**[19]	**839,778.83**
C & D Inside Davidson County	109,987.25	143,479.15	151,103.00	163,893.00	177,648.30
TOTAL MSW & C&D WASTE	**657,426.19**	**658,022.00**	**576,337.00**	**1,026,788.17**	**1,017,427.13**

[19] MSW tons from 2004 now include 117,721 tons of sewage sludge and 91,703.85 tons of industrial and special waste which had previously not been included as municipal solid waste.

Metro Public Works 2005 Annual Report to Council
Attachment E.

Household Hazardous Waste Diverted from Landfills[20]

	2001	2002	2003	2004
Electronics/Computers	110.00	148.00	397.14	137.94
Batteries (car & consumer)				
Antifreeze				
Used Motor Oil				
Propane Tanks				
Oil Based Paint & Pesticides				
Waste Tires	7,714.70	4,667.41[21]	3,404.15	7,501.83
TOTAL TONS	**7,824.70**	**4,815.41**	**3,801.29**	**7,639.77**

[20] Data for 2003 represents all material collected at Metro's Household Hazardous Waste facility including latex paint which was treated and landfilled. In 2004, noting that Section 5A requests amount of HHW diverted from landfills, latex paint tons were removed from the total so that only hazardous material not landfilled was reported.

[21] 2002 tire recycling tons were under reported in State 2002 Annual Progress Report and 2002 Report to Council. Data provided by TDEC shows tire recycling tons at 4,667.41 instead of 149.46 tons.

Metro Public Works 2005 Annual Report to Council
Attachment F.

Revenue[22]

	FY2001	FY2002	FY2003	CY2003	CY2004
Tip Fees	$2,890,221	$2,670,062	$898,997	$885,587	$1,216,680
Metro Investment Pool	$400,943	$336,888	$103,155	$83,734	$52,073
MSW/C&D Fees	$2,009,699	$2,558,862	$2,639,178	$2,895,698	$2,705,805
Inspection Fees	$8,553	$8,800	$3,650	$5,125	$6,525
TOTAL	**$5,309,416**	**$5,574,612**	**$3,644,980**	**$3,879,144**	**$3,981,083**

[22] Historical data adjusted for non-reoccurring items and sale of material which is reported in Section 9B1 so that comparison year to year is more consistent. 2004 adjustment removed $241,524 for recycling material sales, and $755,554 in grant monies which is not revenue from tip fees or waste generation surcharge.

Metro Public Works 2005 Annual Report to Council
Attachment G.

Contract Compliance, Business Type, and Minorities in Workforce

Provider	Contract #	Service Provided	Environmental Violations	Business Type	Racial Diversity	Gender Diversity
Waste Industries 3301 Benson Drive, Suite 601 Raleigh, NC 27609	15722	Trash Collection		Large Business Majority Male Owned	15# 22% Black 51# 74% White 2# 3% Hispanic 1# 1% Other	61# 88% Male 8# 12% Female
Red River Services 9304 Ledgestone Terrace Austin, TX 78737	15723	Trash Collection		Large Business Majority Male Owned	___# 41% Black ___# 55% White ___# 2% Hispanic ___# 2% Other	___# 95% Male ___# 5% Female
Hudgins Disposal, Inc.	15721	Trash Collection	None	Other Small Business Majority Male Owned	5# 56% Black 3# 33% White ___# ___% Hispanic 1# 11% Other	8# 89% Male 1# 11% Female
Storm Reconstruction Services 1609 Veterans Memorial Pkwy Tuscaloosa, AL 35404	15832	Brush Collection		Large Business Majority Male Owned	___# 18% Black ___# 63% White ___# 10% Hispanic ___# 9% Other	___# 85% Male ___# 15% Female
Rivergate Recycling (QRS) 208 River Hills Drive Nashville, TN 37210	15772	Recycled Material Processing		Other Small Business Majority Male Owned	___# 32% Black ___# 48% White ___# 20% Hispanic ___# ___% Other	___# 76% Male ___# 24% Female
Environmental Wood Recycling	14445	Chipping and Composting *****HAVE NOT RECEIVED DATA AS OF 8/31/06*****		Other Small Business Majority Male Owned	___# ___% Black ___# ___% White ___# ___% Hispanic ___# ___% Other	___# ___% Male ___# ___% Female

BFI Waste Services	14732	Trash Disposal		Large Business Majority Male Owned	___# 38.71% Black ___# 57.14% White ___# 4.15% Hispanic ___# ___% Other	___# 85.25% Male ___# 14.75% Female
Clean Harbors Environmental	16081	Hazardous Materials Services		Large Business Majority Male Owned	___# 8.94% Black ___# 79.25% White ___# 8.67% Hispanic ___# 2.99% Other	___# 82.39% Male ___# 17.61% Female
Greenman Technologies, Inc.	15728	Tire Recycling		Large Business Majority Male Owned	 27 # 40% White 41 # 60% Minority	60 # 88 % Male 8 # 12 % Female
Toter, Inc. 841 Meacham Road Statesville, NC 28677	14704	Trash/Recycling Containers ***HAVE NOT RECEIVED DATA AS OF 8/31/06***		Large Business Majority Male Owned	___# ___% Black ___# ___% White ___# ___% Hispanic ___# ___% Other	___# ___% Male ___# ___% Female
Stringfellow 2710 Locust Street Nashville, TN 37207	14734	Refuse/Garbage Coll/Dumping Equip.	None	Other Small Business Majority Male Owned	___# ___% Black ___# 88% White ___# 12% Hispanic ___# ___% Other	___# 84% Male ___# 16% Female
Bakers Waste Equipment 223 Baker Street Morganton, NC 28655	15915	Roll-Off Containers ***HAVE NOT RECEIVED DATA AS OF 8/31/06***		Other Small Business Majority Male Owned	___# ___% Black ___# ___% White ___# ___% Hispanic ___# ___% Other	___# ___% Male ___# ___% Female

Metro Nashville
DISTRICT ENERGY SYSTEM

Fiscal Year 2006 District Energy System Report to Metro Council

August 29, 2006

Metro Nashville
DISTRICT ENERGY SYSTEM

Question 1: Performance Guarantees Contained Within Metro's Contract With The Contractor For The Design, Construction, Improvement, Operation And Management Of The District Energy System

- *Construction period successfully completed; Operations period began December 16, 2003*
- *Operations period performance guarantees in place per Management Agreement, including energy efficiency, utility usage and operating cost*
- *Parent Company Guaranty sufficient to cover any unforeseen damages/circumstances per its terms*

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 2: Number Customers Served By NTTC & The DES During FY06 (includes Historical Data)

Fiscal Year	System	Number of Buildings Served
FY 2003	Thermal	38
FY 2003	Thermal/DES	37
FY 2005	DES	37
FY 2006	DES	40

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 3: Amount of Time Thermal Service to Customers Has Been Interrupted & The Reason for Each

Fiscal Year	System	Outages
FY 2003	Thermal	1 Scheduled Cold Plant Storage Outage from November 10 – 11, 2002
FY 2004	Thermal:	2 Scheduled outages, one for steam (48 hours) and one for Chilled water (72 hours) to interconnect the new Energy Generation Facility to the existing energy distribution system
	DES:	None
FY 2005	DES	1 Scheduled Chill Water Outage (9 hours) on December 19, 2004
FY2006	DES	1 Scheduled Chill Water Outage (12 hours) on February 19-20, 2006 1 Uncontrollable Circumstance Steam Outage (10 hours) on March 28, 2006 due to a crane accident damaging the natural gas supply lines

4

Metro Nashville
DISTRICT ENERGY SYSTEM

Question 4: Number of NTTC Personnel Hired & Still With Metro or DES in FY06

- *Number of Thermal Personnel With Metro: 14*
- *Number Thermal Personnel With DES Operations, Constellation Energy Projects and Services, Inc.: 19*

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 5: Number & Type OSHA Reportable Accidents & Lost Time Accidents At Thermal & DES During FY06

Fiscal Year	System	OSHA Reportable/Lost Time Accidents
FY 2003	NTTC	NTTC Reportable Accidents: One OSHA reportable accidents (Cut Finger During Baghouse Demolition) and 1 day of lost time
FY 2004	NTTC	NTTC Reportable Accidents: No reportable accidents and no lost time
	DES	DES Reportable Accidents: One reportable accident and no lost time
FY 2005	DES	DES Reportable Accidents: No reportable accidents and no lost time
FY2006	DES	DES Reportable Accidents: No reportable accidents and no lost time

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Metro Nashville DISTRICT ENERGY SYSTEM

Question 6: Full Cost of NTTC Operations During FY06

	Un-Audited FY04 Results	Un-Audited FY05 Results	Un-Audited FY06 Results
Projected Metro Fee Paid to NTTC	$2,605,697	$292,113	$0
Thermal Refinancing Debt Service	$7,813,988	$7,794,850	$7,784,010
Total Net Metro Costs	$10,419,685	$8,086,963	$7,784,010

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Metro Nashville DISTRICT ENERGY SYSTEM

Question 7: Full Cost of DES Operations During FY06

Item			FY06 Budget	FY06 Spending	Difference
FOC	Basic		$3,552,877	$3,552,877	$0
	9th Chiller		$33,291	$33,291	$0
	C/O 6A		$65,726	$65,726	$0
	C/O 6B		$36,275	$34,679	-$1,596
Chemicals			$129,000	$116,054	-$12,946
Engineering			$52,221	$0	-$52,221
Insurance			$31,682	$28,394	-$3,288
Marketing	- CEPS Sales Activity		$49,746	$0	-$49,746
	- Metro Marketing		$100,000	$60,198	-$39,802
	- Incentive Payments		$16,593	$16,592	$0
Metro Incremental Cost			$549,500	$658,015	$108,515
Water			$787,810	$479,012	-$308,798
Natural Gas			$5,712,967	$5,037,452	-$675,515
Electricity			$3,397,328	$3,402,933	$5,606
EDS Repair & Improvement			$156,663	$276,823	$120,160
EDS Surcharge			$62,561	incl.	
FEA	Steam			$163,948	$163,948
	CHW			$54,526	$54,526
Debt Service		2002 Bonds	$4,296,102	$4,296,432	$330
		2005 Bonds	$247,693	$247,693	$0
Oper. Reserve Funding Deposit			$697,440	$697,440	$0
Contingency			$169,024		-$169,024
		Total	$20,144,500	$19,222,085	-$922,414

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 8: Metropolitan Government's, The State Of Tennessee, And The Aggregate Of Private Customers Heating And Cooling Costs Annually During FY06

	Steam	Chilled Water	Total
Metro	$ 2,428,482.77	$ 3,120,299.75	$ 5,548,782.52
State	$ 3,419,211.69	$ 3,053,660.97	$ 6,472,872.66
Private	$ 2,178,228.63	$ 2,960,344.90	$ 5,138,573.53
Total	$ 8,025,923.09	$ 9,134,305.62	$ 17,160,228.71

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 9: Amount Metro Paid For Additional DES System Capacity Charge Per Annex C, Section B.1 of Service Agreement in FY06

Item	FY 06 Budget	FY 06 Actual	Difference
Metro Funding Amount	$ 2,173,100	$ 2,014,941	$ - 158,159

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 10: Annual Cost of Maintaining DES Distribution System Above $150k Allowance During FY06 (1)

Includes Historical Thermal Energy Distribution System Costs FY 2003

	Capital Projects (3)	EOM/R&I (4)	Total
Fiscal Year 2003	$ 586,290	$ 166,105	$ 52,395
Fiscal Year 2004(2)	$ 2,024,302	$ 25,515	$ 2,049,817
Fiscal Year 2005	$ 6,926,995	$ 1,316,145	$ 8,243,140
Fiscal Year 2006	$ 3,712,547	$ 513,989	$ 4,226,536

(1) Costs are totals before subtracting the $150,000 allowance
(2) Includes costs incurred by both Thermal and DES during FY 2004
(3) Typically covers upgrade work for new customers, replacement of major system sections, manhole work, etc.
(4) Extra Ordinary Maintenance by Thermal; Repair & Improvement Cost by DES

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 11: Annual Revenue Received From Thermal Tipping Fees During FY06

- *No longer applicable*

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Metro Nashville
DISTRICT ENERGY SYSTEM

Question 12: Annual Revenue Received From Customers of the District Energy Distribution System in FY06

Energy Revenues/Sales	$17,160,229
Late Fees and Other Charges	$33,364
End-of-Year Adjustments	$13,551
Total DES Revenues	$17,207,144

13

Metro Nashville
DISTRICT ENERGY SYSTEM

Question 13: Contract Compliance – Number and Type of Contract Violations For DES During FY06

- *None*

14

Metro Nashville
DISTRICT ENERGY SYSTEM

Appendix

System Review FY2006

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Metro Nashville
DISTRICT ENERGY SYSTEM

New DES Operates and Looks Great!





16

Metro Nashville DISTRICT ENERGY SYSTEM

The System

- 40 buildings served
  - 14 State of Tennessee
  - 10 Metro Nashville Government
  - 16 Private
- 26,000 linear feet of piping
- Services offered
  - Steam
  - Chilled water

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Metro Nashville DISTRICT ENERGY SYSTEM

Performance Operations

- Reliability: 99.99%
- Steam
  - 1.45 mmBtu/mlb sendout
  - 17% condensate return
- Chilled Water
  - 0.76 kwhr/ton-hr sendout
  - 1.91 gal/ton-hr sendout make-up water
- Losses
  - Steam = 9.9%
  - Chilled Water = 16.4%

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Metro Nashville DISTRICT ENERGY SYSTEM

Energy Generation Facility (EGF) from Gateway Bridge

- N + 1 Redundancy
- CEPS - 24 Staff

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Metro Nashville DISTRICT ENERGY SYSTEM

EGF from Hermitage Avenue

20

Metro Nashville
DISTRICT ENERGY SYSTEM

EGF from Peabody Street

21

Metro Nashville
DISTRICT ENERGY SYSTEM

22

Metro Nashville
DISTRICT ENERGY SYSTEM

CHW Distribution Pumps

23

Metro Nashville
DISTRICT ENERGY SYSTEM

Condenser Water Pumps

24

Metro Nashville
DISTRICT ENERGY SYSTEM

Boiler Row
4 - English Boilers
260,000 pph Capacity

25

Metro Nashville
DISTRICT ENERGY SYSTEM

Mezzanine Area – Water Treatment

26

Metro Nashville
DISTRICT ENERGY SYSTEM

Natural Gas Supply into EGF

27

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Propane Backup Fuel

28

Metro Nashville
DISTRICT ENERGY SYSTEM

Electrical Switch Yard 29

Metro Nashville
DISTRICT ENERGY SYSTEM

Motor Control Center 30

Metro Nashville
DISTRICT ENERGY SYSTEM

Roof Top Cooling Towers

31

Metro Nashville
DISTRICT ENERGY SYSTEM

Downtown Nashville from EGF Cooling Towers

32

Metro Nashville DISTRICT ENERGY SYSTEM

Customer Improvements

- Decoupled chilled water services at State Tennessee Tower and Sheraton Nashville Hotel
- Renaissance Hotel and Office Tower and Nashville Convention Center re-piping

33

Metro Nashville DISTRICT ENERGY SYSTEM

New Metering for Customers

Benefits

- Knowledge of building's energy performance
- Visual feedback of increased energy efficiency efforts
- Compare monthly energy consumptions to historical data
- Forecasting tool for building energy consumption

Chilled Water Flow Meter

Yokogawa Meter Panel

Steam Flow Meter

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Metro Nashville DISTRICT ENERGY SYSTEM — New Metering for Customers

Current Capabilities

- New NDES metering panel: Yokogawa CX2000
  - Ability to view panel display screen from PC via Internet web browser
  - Alarm notifications can be sent directly to customers via email when peak energy usages are exceeded
  - Energy data stored to removable memory cards that can be removed and downloaded for manual data reduction
  - Data can be sent to customer building energy management system

Web Browser Panel Screen Display


Email Alarm Notifications

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Metro Nashville DISTRICT ENERGY SYSTEM — New Customers


Metro A.A. Birch Courthouse


Metro Hume Fogg School


Schermerhorn Symphony Center

36

Metro Nashville DISTRICT ENERGY SYSTEM

New Customers (Cont'd)

VIRIDIAN

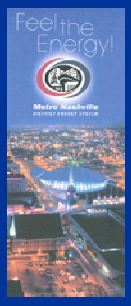
Residential Condominiums

37

Metro Nashville DISTRICT ENERGY SYSTEM

Communications

- Customer meetings – two per year
- Fall and Spring e-Newsletters
- www.nashville.gov/des updates
- Updated brochure printed in FY2006



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Metro Nashville DISTRICT ENERGY SYSTEM

2006 International District Energy Association Awards

Public Sector Leadership Award – Mayor Bill Purcell

System of the Year Award – Metro Nashville DES and CEPS

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Metro Nashville DISTRICT ENERGY SYSTEM

Reasons Why DES Services Are Preferred Over Self-Heating and Cooling

- ✓Increased reliability; no scheduled outages
- ✓Predictable and lower operating costs
- ✓Frees up capital for funding other costs
- ✓Metering helps with building Energy Management System
- ✓Eliminates mist impact on neighbors
- ✓Beautifies Downtown
- ✓Supports Metro Nashville

40

Metro Nashville
DISTRICT ENERGY SYSTEM

Great for Nashville!

- ✓*Supports economic development*
- ✓*Beautifies Downtown*
- ✓*Improves the environment*

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METRO PUBLIC HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES

AIR QUALITY IN DAVIDSON COUNTY

Presented by
Brent Hager, PhD, PE
September, 2006

Prepared by
Fred Huggins
Air Quality Services Division

AIR QUALITY SERVICES

Major Activities

- Monitoring ambient air quality
- Compiling emission inventories
- Formulating air pollution control strategies
- Providing compliance assistance to the regulated community
- Issuing permits to sources
- Inspecting facilities
- Carrying out enforcement activities
- Providing public education and outreach

WHERE DOES MOST OF NASHVILLE'S AIR POLLUTION COME FROM?

POLLUTANT	SOURCE
PM_{10}	81% from dust from paved roads
SO_2	88% from fuel combustion
NOx	86% from on and off road mobile sources
CO	98% from on and off road mobile sources
VOC	62% from on and off road mobile sources

- As you can see, a key to improving air quality in Nashville is minimizing air pollution from mobile sources.

MOBILE SOURCES

- Mobile sources include both on-road and off-road sources.
- This source category includes cars, trucks, buses, airplanes, trains, lawn equipment, construction and agricultural equipment and boats.
- The criteria air pollutants emitted from mobile sources account for ~84% of the total amount of criteria pollutants emitted by all air pollution sources in Nashville.

MOBILE SOURCES (cont.)

- This source category is generally the largest contributor to air pollution in middle and large size cities.
- A key strategy for managing air quality in cities is to minimize the emissions from the mobile source category.
- You can help by keeping your car tuned up, carpooling, walking or biking as much as possible and promoting and using mass transit.

NASHVILLE THERMAL TRANSFER CORPORATION and METRO DISTRICT ENERGY SYSTEM

- NTTC ceased burning municipal solid waste after the fire on May 23, 2002.
- NTTC began burning only natural gas in May, 2002.
- Metro DES began operating December 15, 2003.
- Since beginning operation, Metro DES has not violated any air quality regulations.

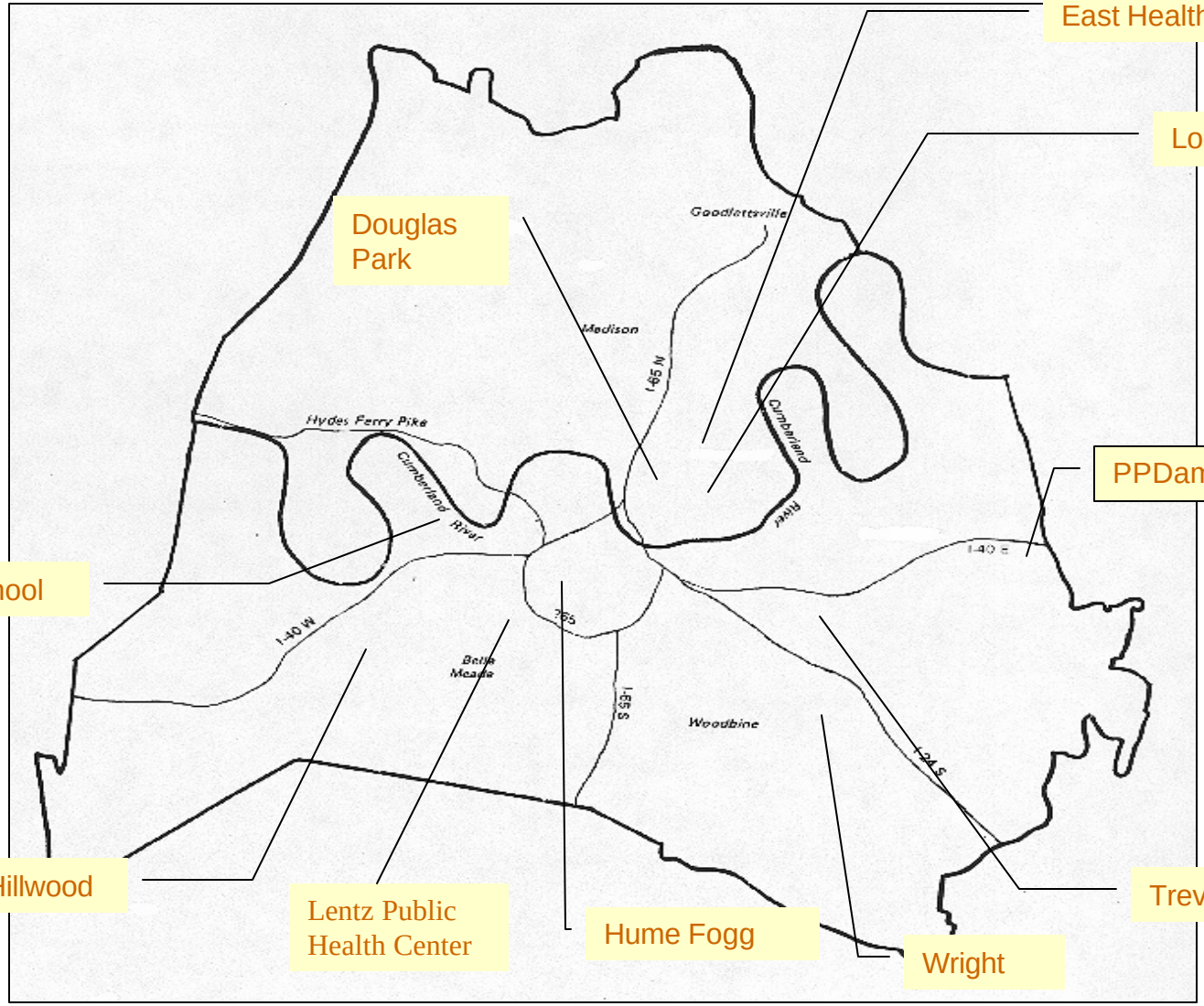
AIR EMISSIONS NTTC vs METRO DES

NTTC Burning Municipal Waste, Natural Gas and Metro DES ALLOWABLE CRITERIA AIR EMISSIONS IN TONS PER YEAR				
POLLUTANT	**NTTC w/MWC**	**NTTC w/Nat. Gas**	**METRO DES**	**CHANGE FROM NTTC w/MWC TO METRO DES**
Particulate matter	160.7	69.4	10.9	-93.2%
Sulfur dioxide	315.5	20.2	1.6	-99.5%
Nitrogen oxides	698.0	164.2	90.2	-87.1%
Carbon monoxide	267.3	174.1	120.2	-55.0%
VOC	29.2	11.4	7.9	-72.9%
Lead	1.5	0	0	-100%

NASHVILLE'S AIR QUALITY

- The Nashville MSA, including Davidson County, is currently designated attainment for all National Ambient Air Quality Standards (NAAQS) except for the more stringent 8-hour ozone standard.
- The Pollution Control Division operates an ambient air monitoring network across Davidson County to determine compliance with the NAAQS.
- The pollutants measured are: particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and ozone.

AMBIENT AIR MONITOR LOCATIONS



MONITORS ON LOCKELAND ROOF

REVISED AIR QUALITY STANDARDS

- The revised NAAQS for particulate matter and ozone are now in effect.
- A new standard was added for very small particulate matter called $PM_{2.5}$.
- The ozone standard was revised and made more stringent by changing the averaging time from 1 hour to 8 hours and lowering the standard from 0.12 ppm to 0.08 ppm.
- The monitors in Davidson County were meeting the more stringent 8-hour ozone standard, but due to ozone monitors located in surrounding counties in the Nashville MSA, the Nashville MSA was not meeting the more stringent 8-hour standard in 2004 when designations were made by EPA.

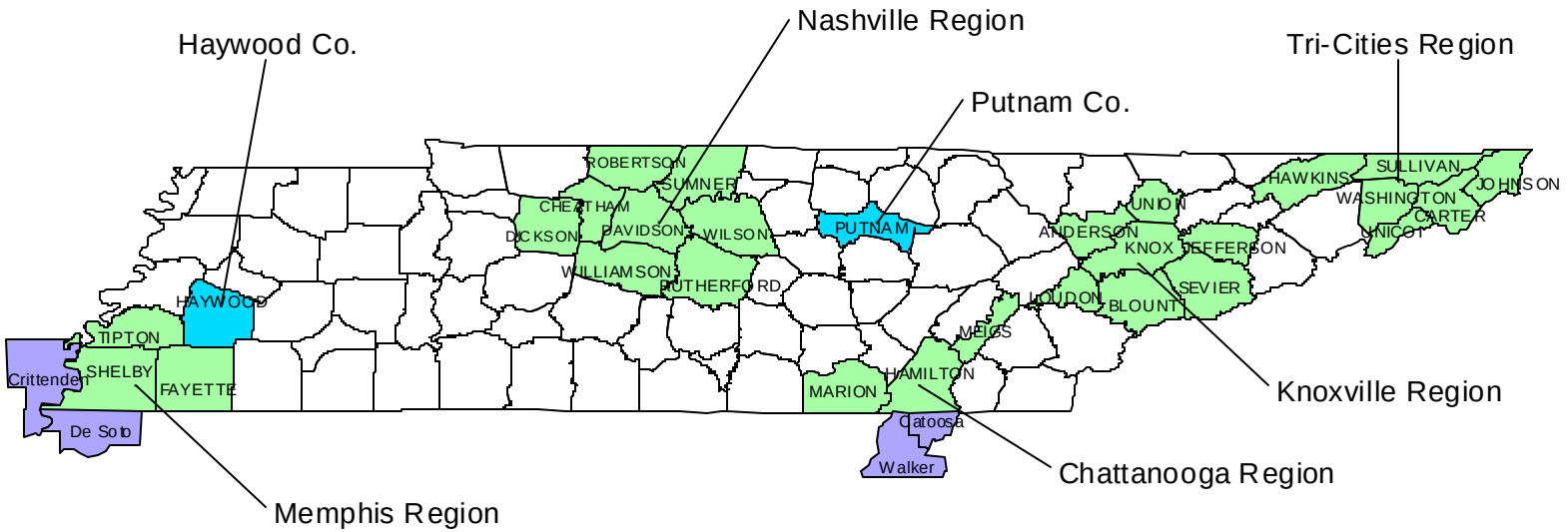
WHAT ARE WE DOING?

- Continuing implementation of the Vehicle Inspection Program (VIP) and enforcement of existing regulations.
- Expanded the VIP in Middle TN beginning April 1, 2005 to add light duty gasoline vehicles between 8,500 and 10,500 pounds, and for the first time, light duty diesel vehicles from 1975 to the present.
- Participating in the Nashville Early Action Compact (EAC) with TDEC, TDOT other Nashville MSA counties.
- Completed our portion of the Nashville EAC plan to bring Davidson County and the Nashville MSA into attainment with the more stringent 8-hour ozone standard.
- Submitted the EAC plan to EPA, and subsequently received EPA approval, demonstrating that the Nashville MSA will attain the 8-hour ozone standard by 2007 and will continue to maintain the standard at least through 2017.
- Participating in a daily Nashville MSA air quality forecast.
- Participating in the Clean Air Partnership of Middle Tennessee.

NASHVILLE EAC

- Early Action Compacts (EACs) are voluntary agreements to meet clean air standards quicker.
- These agreements are between the state, EPA, and the local elected officials of those counties and cities in the state that have been designated as 8 hour ozone non-attainment areas by EPA on April 15, 2004.
- The EAC's provide a voluntary mechanism to meet the 8-hour ozone standard by 2007 – **cleaner air sooner.**
- As an enticement for the state to develop a plan to attain the 8-hour ozone standard on an accelerated schedule, EPA agreed to defer the non-attainment designations that were made for traditional ozone non-attainment areas on April 15, 2004.

ORIGINAL PROPOSED EAC REGIONS IN TENNESSEE



Nashville EAC (cont.)

- The Nashville EAC plan was one of only two plans in the State that received an initial deferral from EPA on April 15, 2004.
- Our deferral was granted because our plan met all the EPA requirements and showed that the area would demonstrate attainment of the 8-hour hour standard by December 31, 2007.
- The other area was the Tri-Cities Region.
- The Chattanooga EAC has modified their original plan, and EPA has subsequently granted that area a deferral also.
- The Nashville EAC area has received a deferral of conventional nonattainment restrictions until December 31, 2006.
- EPA has committed to continue the deferrals as long as the Nashville EAC partners continue to implement the approved plan and the compact remains in effect.
- The Nashville EAC plan is centered on mobile source control and reducing vehicle miles traveled.

Nashville EAC Control Measures

- Expanded the existing Vehicle Inspection Program to include heavier vehicles and, for the first time, light diesel vehicles
- Ban on open burning of land clearing material on forecast high ozone days
- Clean Air Partnership of Middle Tennessee program
- HOV lane expansion
- Trip reduction plans
- Rideshare programs
- Traffic signal synchronization
- Roadside assistance program
- New greenways/bikeways
- Improve bus ridership
- New rail service
- Land use control to reduce vehicle miles traveled

Clean Air Partnership of Middle Tennessee

- The Partnership announces Air Alerts on EnviroFlash (a free subscription email service), in the local news media and on TDOT message signs.
- The Partnership encourages the public to change behavior that contributes to air pollution (i.e. driving, mowing and energy use).
- The Partnership works with local businesses to encourage employees to choose alternative commuter options.
- Members of the Partnership include MPHD, Nashville MPO, MTA, RTA, TDEC, TDOT, Vanderbilt University, HCA Healthcare, Clean Cities of Nashville and the American Lung Association (ALA).
- You can sign up for email EnviroFlash Air Alerts at: www.cleanairpartnership.info

SUMMARY

- We have come a long way, and Nashville is in attainment with the old 1-hour ozone standard and the new $PM_{2.5}$ standard.
- We are making progress and we have a plan to bring the Nashville MSA into attainment with the new, more stringent 8-hour ozone standard.
- Our EPA-approved plan shows that we will attain the 8-hour ozone standard in Middle Tennessee by December 31, 2007.
- In fact, as of December 31, 2004, the Nashville MSA was already meeting the more stringent 8-hour ozone standard three years earlier than predicted.
- We are committed to do our part to ensure that the Nashville MSA attains and maintains good air quality so that everyone in Nashville can enjoy healthy living free from disease, injury and disability.

AIR QUALITY SERVICES

Useful Telephone Numbers and Websites

Metro Public Health Department
http://healthweb.nashville.org/psipoll.html
(AQI, Air Quality Forecast & Pollen recording)

Clean Air Partnership of Middle Tennessee
http://www.CleanAirPartnership.info

Air Quality Services
(615) 340-5653